REFERENCES

1. Brookes, K. J. A., “Hardness and Other Hard Materials”, Third Edition, *International Carbide Data*, 1998.

2. Exner, H. E., “Physical and chemical nature of cemented carbides”, *International Metals Review*, Volume 243, Issue 4, 1979, pp. 149-173.

3. Beste, U., “On the nature of cemented carbide wear in rock drilling”, *PhD thesis*, Uppsala University, 2004.

4. Engqvist, H., “Microstructure aspects on wear of cemented carbides”, *PhD Dissertation*, Acta Universitatis Upsaliesis, Uppsala, 2000.

5. Ramqvist, L., “Preparation, properties and electronic structure of refractory carbides and related compounds”, *Jernkontorets Annaler*, Volume 153, Issue 4, 1969, pp. 159-179.

6. O’Quigley, D., “The properties and relationships between properties of a wide range of WC-Co hardmetals”, *MSc dissertation*, University of Witwatersrand, 1996.

7. Llanes, L. Torres, Y. and Anglada, M., “On the fatigue crack growth behavior of WC–Co cemented carbides - kinetics description, microstructural effects and fatigue sensitivity”, *Acta Metallurgica*, Volume 50, Issue 9, 2002, pp. 2381-2393.

8. Upadhyaya, G. S., “Materials science of cemented carbides: an overview”, *Materials & Design*, Volume 22, Issue 6, 2001, pp. 559-56.

9. Engqvist, H. Jacobson, S. and Axén, N., "A model for the hardness of cemented carbides", *Wear*, Volume 252, Issue 5-6, 2002, pp. 384-393.

10. Machio, C. N., "Preparation, characterization and testing of WC-VC-Co HP/HVOF thermal spray coating", *PhD Dissertation*, University of Witwatersrand, Johannesburg, 2005.

11. Mills, B., "Recent development in cutting tools materials", *Journal of Material Processing Technology*, Volume 56, Issue 1-4, 1996, pp. 16-23.

12. Sigl, L. S. and Fischmeister, F. H., "On the fracture toughness of cemented carbides", *Acta Metallurgica*, Volume 36, Issue 4, 1988, pp. 887-897.

13. Hutchings, I. M., "Tribology, Friction and wear of engineering materials" University of Cambridge, Edward Arnold, 1992.

14. Larsen-Basse, J. Shishido, C. M. and Tanouye, P. A., "Some features of abraded WC-Co surfaces", *Journal of the Australian Institute of Metals*, Volume 19, Issue 4, 1974, pp. 270-275.

15. Larsen-Basse, J., "Binder extrusion during sliding wear of WC-Co alloys", *Wear*, Volume 105, Issue 3, 1985, pp. 247-256.

16. Larsen-Basse, J., "Effect of composition, Microstructure, and Service Conditions on the Wear of Cemented Carbides", *Journal of Metals*, Volume 35, Issue 11, pp. 35-42.

17. Martin, J. W., "Material science for engineering, the institute of materials", 1996.

18. Zum Gahr, K-H., "Microstructure and wear of material", *Institute of Materials technology*, University of Siegen, Elsevier Science, 1987.

19. Beste, U. Coronel, E. and Jacobson, S., "Wear induced material modification of cemented carbide rock drill buttons", *International Journal of Refractory Metals and Hard Materials*, Volume 24, Issue 1-2, 2006, pp. 168-176.

20. Beste, U. Hartzel, T. Engqvist, H and Axén, N., "Surface damage on cemented carbide rock-drill buttons", *Wear*, Volume 249, Issue 3-4, 2001, pp. 324-329.

21. Jonsson, H., "Wear of cemented carbide bits during percussive drilling in magnetite-rich ore", *Planseeberichte fuer Pulvermetallurgie*, Volume 24, Issue 2, 1976, pp. 108-134.

22. Tokumoto, K. Terazaki, K. and Takana, K., "Thermal shock resistance of cemented carbides", *Nippon Tungsten Review*, Volume 23, 1990, pp. 59-66.

23. Ishihara, S. Shibata, H. Goshima, T. and McEvily, A. J., "Thermal shock induced micro cracking of cermets and cemented carbides", *Scripta Metallurgica*, Volume 52, Issue 7, 2005, pp. 559-563.

24. Ishihara, S. Goshima, T. and Nomura, K., "Crack propagation behavior of cermets and cemented carbides under repeated thermal shocks by the improved quench test", *Journal of Material Science*, Volume 34, Issue 3, 1999, pp. 629-639.

25. Engqvist, H. Botton, G. A. Ederyd, S. pfaneuf, M. Fondelius, J. and Axén, N., "Wear phenomena on WC-based face seals", International *Journal of Refractory Metals and Hard Materials*, Volume 18, Issue 1, 2000, pp. 39-46.

26. Deketh, H. J. R., "Wear of rock cutting tools- Laboratory experiments on the abrasivity of rock", *Technical University Delft*, Section Engineering Geology, Delft, 1995.

27. Lagerquist, M., “A study of the thermal fatigue crack propagation in WC-Co cemented carbide”, *Powder Metallurgy*, Volume 18, Issue 35, 1975, pp. 71-88.

28. Larsen-Basse, J. Perrott, M. and Robinson, P. M., “Abrasive wear of tungsten carbide-cobalt composite. Rotary drilling tests”, *Material Science and Engineering*, Volume 13, Issue 2, 1974, pp. 83-91.

29. Larsen-Basse, J., “Role of microstructure and mechanical properties in abrasion”, *Acta Metallugica*, Volume 24, Issue 14, 1990, pp. 821-826.

30. Basu, S. N. and Srin, V. K., “Oxidation behaviour of WC-Co”, *Materials Science and Engineering A: Structural materials*: Properties, *Microstructure and Processing*, Volume A209, Issue 1-2, 1996, pp. 206-212.

31. Voitovich, V. B. Sverdel, V. V. Voitovich, R. F. and Golovko, E. I., “Oxidation of WC-Co, WC-Ni and WC-Co-Ni hard metals in the temperature range 500 - 800°C”, *International Journal of Refractory Metals and Hard Materials*, Volume 14, Issue 4, 1996, pp. 289-295.

32. Przybylowicz, W. J. Luyckx, S. B. and Watterson, J. I. W., “Proton microprobe investigation of the causes of pitting in cemented tungsten carbide”, *Nuclear Instruments and Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms*, Volume 79, Issue 1-4, 1993, pp. 428-431.

33. Lofaj, F. and Kaganovskii, Yu S., “Kinetics of WC-Co oxidation accompanied by swelling”, *Journal of Material Science*, Volume 30, Issue 7, 1999, pp. 1811-1817.

34. Gasas, B. Ramis, X. Anglada, M. Salla, J. M. and Llanes, L., "Oxidation-induced strength degradation of WC-Co hardmetals", *International Journal of Refractory Metals and Hard Material*, Volume 19, Issue 4-6, 2001, pp. 303-309.

35. Acchar, W. Gomes, U. U. Kaysser, W. A. and Goring, J., "Strength degradation of a tungsten Carbide-cobalt composite at elevated temperature", *Materials Characterization*, Volume 43, Issue 1, 1999, pp. 27-32.

36. Hankins, W., "Introduction to Chemistry", Saint Louis: c.v Mosby, 1974.

37. Han Xiao, "On the plastic deformation mechanisms of WC-Co alloys at high temperature", *Masters Dissertation*, University of Witwatersrand, Johannesburg, 2006.

38. Herrmann M., Private Communication, University of Witwatersrand, 2007.